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CLAIMS

1. A storage system to store information written by a data processing system to a plurality of logical volumes, wherein the data processing system accesses the plurality of logical volumes in the storage system using a logical volume address, the storage system comprising:
 - 10 a plurality of storage devices that store the plurality of logical volumes;
a plurality of controllers that each is coupled to at least one of the plurality of storage devices and controls access to the one of the plurality of storage devices; and
a memory that stores a dynamic configuration table that includes information specifying dynamic assignments of resources in the storage system, the dynamic
 - 15 configuration table being indexed by the logical volume address, the dynamic assignments of resources in the storage system including one of a dynamic assignment of at least a portion of one of the plurality of storage devices to store at least a portion of one of the plurality of logical volumes, and a dynamic assignment of at least one logical volume to form a logical connection with another logical
 - 20 volume.
2. The storage system of claim 1, wherein each of the plurality of storage devices is a disk drive.
- 25 3. The storage system of claim 1, wherein the memory is globally accessible to each of the plurality of controllers.
4. The storage system of claim 1, wherein the resources dynamically assigned include at least a portion of one of the plurality of storage devices that is
- 30 dynamically and temporarily assigned to store one of the logical volumes.
5. The storage system of claim 1, wherein the resources dynamically assigned include at least one logical volume that is dynamically assigned to form a logical connection with another logical volume.

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6. The storage system of claim 1, wherein each of the plurality of controllers includes a local memory that stores a local dynamic configuration table that includes information specifying the dynamic assignments of resources in the storage system, each of the local dynamic configuration tables being indexed by the logical volume
10 address.

7. The storage system of claim 6, wherein each of the local dynamic configuration tables is identical to the dynamic configuration table stored in the memory.

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8. A storage system to store information written by a data processing system to a plurality of logical volumes, wherein the data processing system accesses the plurality of logical volumes in the storage system using a logical volume address, the storage system comprising:
20 a plurality of storage devices that store the plurality of logical volumes;
a plurality of controllers that each is coupled to at least one of the plurality of storage devices and controls access to the one of the plurality of storage devices;
a memory; and
means for creating, in the memory, a dynamic configuration table that
25 includes information specifying dynamic assignments of resources in the storage system, the dynamic configuration table being indexed by the logical volume address, the dynamic assignments of resources in the storage system including one of a dynamic assignment of at least a portion of one of the plurality of storage devices to store at least a portion of one of the plurality of logical volumes, and a
30 dynamic assignment of at least one logical volume to form a logical connection with another logical volume.

9. The storage system of claim 8, wherein each of the plurality of storage devices is a disk drive.

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10. The storage system of claim 8, wherein the memory is globally accessible to each of the plurality of controllers.

11. The storage system of claim 8, wherein the resources dynamically assigned
10 include at least a portion of one of the plurality of storage devices that is dynamically and temporarily assigned to store one of the logical volumes.

12. The storage system of claim 8, wherein the resources dynamically assigned
15 include at least one logical volume that is dynamically assigned to form a logical connection with another logical volume.

13. The storage system of claim 8, wherein each of the plurality of controllers includes a local memory, and wherein the storage system further includes means for creating, in each of the local memories, a local dynamic configuration table that
20 includes information specifying the dynamic assignments of resources in the storage system, each of the local dynamic configuration tables being indexed by the logical volume address.

14. The storage system of claim 13, wherein the storage system includes means
25 for creating each of the local dynamic configuration tables to be identical to the dynamic configuration table stored in the memory.

15. A storage system, comprising:
at least first and second storage devices;
30 at least first and second controllers, each one of the controllers capable of controlling at least one storage device and having a set of ports connectable to the at least one storage device and through which the one of the controllers can be configured to control the at least one storage device, wherein the set of ports for the first controller and the set of ports for the second controller each include at least one

5 port, each of the first and second controllers including a local memory to store a local table that includes information that specifies dynamic assignments of resources in the storage system; and

a memory to store a global table that stores information that specifies the dynamic assignments of resources in the storage system, the memory being
10 accessible by each of the first and second controllers;

wherein each one of the first and second controllers includes updating means, responsive to the one of the first and second controllers being powered up, for automatically updating the local table in the one of the first and second controllers based upon the information stored in the global table;

15 wherein the first storage device is coupled to at least one of the set of ports for the first controller so as to permit the first controller to control access to the first storage device;

wherein the first storage device is not coupled to the second controller in a manner that would permit the second controller to control access to the first storage
20 device, so that the second controller cannot control access to the first storage device;

wherein the second storage device is coupled to at least one of the set of ports for the second controller so as to permit the second controller to control access to the second storage device; and

25 wherein the second storage device is not coupled the first controller in a manner that would permit the first controller to control access to the second storage device, so that the first controller cannot control access to the second storage device.

16. The storage system of claim 15, wherein the updating means in each one of the first and second controllers includes means for, when the global table includes
30 valid information, copying information from the global table to the local table in the one of the first and second controllers.

17. The storage system of claim 16, wherein the updating means in each one of the first and second controllers includes means for, when the local table does not

5 include valid information, initializing the information in the local table in the one of
the first and second controllers to indicate that no dynamic assignments have been
made.

18. The storage system of claim 17, wherein the updating means in each one of
10 the plurality of controllers includes means for, when the local table does not include
valid information, initializing the information in the local table in the one of the
plurality of controllers to indicate that no dynamic assignments have been made.

19. The storage system of claim 15, wherein each one of the first and second
15 controllers includes matching means for determining whether the information stored
in its local table matches the information in the global table.

20. A method of managing a storage system including at least first and second
storage devices, and at least first and second controllers, each one of the controllers
20 capable of controlling at least one storage device and having a set of ports
connectable to the at least one storage device and through which the one of the
controllers can be configured to control the at least one storage device;

wherein the first storage device is coupled to at least one of the set of ports
for the first controller so as to permit the first controller to control access to the first
25 storage device;

wherein the first storage device is not coupled to the second controller in a
manner that would permit the second controller to control access to the first storage
device, so that the second controller cannot control access to the first storage device;

wherein the second storage device is coupled to at least one of the set of
30 ports for the second controller so as to permit the second controller to control access
to the second storage device;

wherein the second storage device is not coupled to the first controller in a
manner that would permit the first controller to control access to the second storage
device, so that the first controller cannot control access to the second storage device;

- 5 wherein the set of ports for the first controller and the set of ports for the second controller each include at least one port, and each of the first and second controllers include a local table that includes information that specifies dynamic assignments of resources in the storage system; and
- wherein the storage system further includes a global table that stores
- 10 information that specifies the dynamic assignments of resources in the storage system and is accessible by each of the first and second controllers;
- the method comprising a step of:
- (A) when one of the first and second controllers is powered up, automatically updating the local table in the one of the first and second
- 15 controllers based upon the information stored in the global table.
21. The method of claim 20, wherein step (A) includes a step of, when the global table includes valid information when the one of the first and second controllers is powered up, copying information from the global table to the local table in the one
- 20 of the first and second controllers.
22. The method of claim 21, wherein step (A) includes a step of, when the local table does not include valid information, initializing the information in the local table in the one of the first and second controllers to indicate that no dynamic
- 25 assignments have been made.
23. The method of claim 20, wherein the storage system stores information written by a data processing system that accesses units of information in the storage system using a logical volume address, and wherein the method further includes a
- 30 step of indexing the global table and each of the local tables by the logical volume address.